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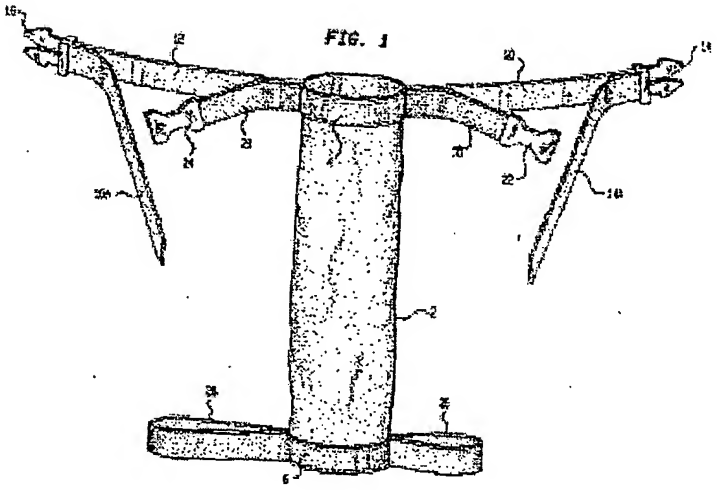

FIG. 1

EP0629391 B1

Oxygen tank (^) holder for use with wheelchairs

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Abstract:

An oxygen tank (^) holder of a suitable fabric material includes a pouch (2) for holding an oxygen tank (^) (8), and which pouch (2) is strapped at its upper and lower ends to the back of a wheelchair (30). The straps (10,12) are adjustable to accomodate various size wheelchairs and so that the pouch (2) can be displaced away from the center of the wheelchair (30) to avoid interfering with the back of the user of said chair, as is desireable.

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Patents Cited:
- US4577903 A

Detailed Description

BACKGROUND OF THE INVENTION

This invention relates to an oxygen tank (^) holder for use with wheelchairs and, more particularly, to an oxygen tank (^) holder of the type described which is of a suitable fabric material so as to be collapsible and which is supported by the wheelchair handle supports and the bottom frame of the chair.

Patients suffering from respiratory ailments are often wheelchair bound for mobility purposes and must have oxygen readily available. It is thus imperative that an oxygen tank (^) be coupled to the wheelchair so as to be moveable therewith.

The present inventor is aware of the following prior art of interest: U.S. Patent 4,213,648 (U.S. Class 297/188) issued to Steichen on July 22, 1980; U.S. Patent 4,506,903 (U.S. Class 280/289) issued to Bowermaster on March 26, 1985; U.S. Patent 4,696,420 (U.S. Class 224/275) issued to Kulic on September 29, 1987; U.S. Patent 4,431,206 (U.S. Class 280/289) issued to Pryor on February 14, 1984; and U.S. Patent 3,970,344 (U.S. Class 297/189) issued to Baumann on July 20, 1976.

U. S. Patent 4,213,648 relates to a wheelchair having a rigid support frame for supporting an oxygen tank (^) thereon. The support frame includes a holding device having a hollow cylinder with an open top end and a bottom closed end. The cylinder includes a mounting bracket (^) for releasably attaching the cylinder to the spaced upwardly extending pins on the wheelchair frame conventionally used to mount detachable foot rests.

U.S. Patent 4,506,903 relates to a device for detachably coupling a wheelchair oxygen tank (^) cart to a wheelchair such that the cart and the chair are transportable together as a unit without the need of a

separate operator for the cart. The **oxygen tank (^)** cart is fixed at its upper end by a strap to the vertical handle support members of a wheelchair.

U.S. Patent 4,696,420 relates to a device for detachably coupling a rigid **oxygen tank (^)** carrier to a wheelchair, wherein the device fits between the downwardly directed support arms of the chair with the carrier being made in different lengths, depending on the size of the chair.

U.S. Patent 4,431,206 teaches an accessory carrier for oxygen bottles, intravenous containers and other medical accessories and to this extent includes a lower vertically extending post for detachable **attachment (^)** to the back of the wheelchair so as to permit folding of the chair and further including an upper elongated vertical post for supporting additional accessories.

U.S. Patent 3,970,344 teaches an **oxygen tank (^)** holding device for ready **attachment (^)** to a wheelchair. The device is collapsible to the extent that it includes a tank receiving basket and a pair of struts detachably supported on the wheelchair and pivotally connected to the sides of the basket. Flexible cable means are provided to maintain the basket in a vertical position when the device is in an operative position on the wheelchair.

US-A-4 577 903 discloses a wheelchair attached storage bag which is fixed by loops to the handles and to the bottom wheelchair frame members.

The device of the present invention features a fabric pouch for holding an **oxygen tank. (^)** and which pouch is strapped at its top and bottom to the back of a wheelchair. Accordingly, the present invention differs structurally from the prior art as aforenoted.

SUMMARY OF THE INVENTION

This invention contemplates an **oxygen tank (^)** holder for use with wheelchairs including a pouch of a suitable flexible fabric material within which an **oxygen tank (^)** is disposed. Fabric straps extend in opposite directions from the opposite sides of the pouch near the open top thereof and fabric loops extend in opposite directions from the opposite sides of the pouch near the closed bottom thereof. The straps engage the wheelchair handle supports and the loops engage the bottom frame of the chair, whereby the **oxygen tank (^)** holder is supported on the back of the chair. The straps are adjustable and the loops are of different sizes, whereby different size wheelchairs may be accommodated and the pouch may be supported away from the center of the wheelchair back so as not to interfere with the back of a patient using the wheelchair, as might otherwise be the case.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a plan view representation illustrating an **oxygen tank (^)** holder in accordance with the invention.

Figure 2 is a diagrammatic representation illustrating the **oxygen tank (^)** holder shown in Figure 1 supported on the back of a wheelchair.

DETAILED DESCRIPTION OF THE INVENTION

With reference first to Figure 1, a pouch is designated by the numeral 2. Pouch 2 includes an open top 4 and a closed bottom 6. An **oxygen tank (^)** 8 shown in Figure 2 is disposed within pouch 4 so as to be

carried thereby.

A strap 10 is secured to pouch 2 near open top 4 thereof so as to extend away therefrom in one direction and a strap 12 is secured to the top of pouch 2 near open top 4 thereof so as to extend away therefrom in an opposite direction. Straps 10 and 12 include buckle members 14 and 16, respectively, and are adjustable with respect to the buckle members, as indicated by strap tails 14A and 16A, respectively, whereby the length of the straps can be adjusted.

A tail 18 is secured to pouch 2 near open top 4 thereof so as to extend away therefrom generally in the direction of strap 10 and a tail 20 is secured to pouch 2 near open top 4 thereof so as to extend away therefrom generally in the direction of strap 12. Tails 18 and 20 include buckle members 22 and 24, respectively. The arrangement is such that buckle member 14 engages buckle member 22 and buckle member 16 engages buckle member 24 when pouch 2 is supported on a wheelchair, as will be further described with reference to Figure 2.

A loop 26 is secured to pouch 2 near closed bottom 6 thereof and extends generally in the direction of strap 10. A loop 28 is secured to pouch 2 near closed bottom 6 thereof and extends generally in the direction of strap 12. One of the loops such as 28 is longer than the other of the loops for purposes as will hereinafter become evident. Loops 26 and 28 engage the bottom frame of the wheelchair when pouch 2 is supported thereon, as will be described with reference to Figure 2.

With particular reference now to Figure 2, a conventional type wheelchair is designated generally by the numeral 30. Wheelchair 30 has a pair of transversely spaced handle supports 32 and 34 extending longitudinally along the back of the wheelchair, and has a bottom frame 36 having rearwardly extending transversely spaced bar members 38 and 40. Since wheelchair 30 is of the conventional type as aforenoted, only as much of the wheelchair as is necessary to understand the invention will be described herein.

In supporting pouch 2 on the back of wheelchair 30, strap 10 is disposed around handle support 32 near the top thereof and buckled to tail 18 via buckle members 14 and 22 (Figure 1). Likewise, strap 12 is disposed around handle support 32 near the top thereof and is buckled to tail 20 via buckle members 16 and 24 (Figure 1). Loop 26 is looped over bottom frame bar member 38 and loop 28 is looped over bottom frame bar member 40.

The adjustability of straps 10 and 12 and the difference in the lengths of loops 26 and 28 is an important feature of the invention. Thus, straps 10 or 12 can be lengthened or shortened in their respective buckle members 14 or 16, as the case may be, so that the top 4 of pouch 2 is displaced in one or an opposite direction from the center of the back of wheelchair 30. The difference in the lengths of loops 26 and 28 serves to align bottom 6 of pouch 2 with top 4 thereof so displaced, as aforenoted. Thus, with the arrangement described, pouch 2, shown in Figure 2 as centered on the back of wheelchair 30, can be displaced to accommodate different transverse spacing between handle supports 32 and 34 and bottom frame bar members 38 and 40, and can be displaced away from the center of the back of the wheelchair so as not to interfere with the back of a user of the chair, as may be uncomfortable and otherwise undesirable for said user.

The invention as described herein has several advantages over prior art **oxygen tank (^)** holders for use with wheelchairs, as will be readily discerned. For example, the **oxygen tank (^)** holder of the invention is not rigid and is thus lighter in weight than prior art **oxygen tank (^)** holders so as to be particularly useful by the disabled. In this regard, it will be understood that pouch 2 and the several straps and tails

heretofore described are formed from a suitable flexible fabric material such as a heavy duty waterproof Nylon. This avoids rigid metallic holders, struts, brackets and the like for supporting the **oxygen tank (^)** holder on the wheelchair, as has otherwise been necessary. Further, the present device can be easily removed from the wheelchair and compactly folded and stored or packed when not in use. The device of the invention may be easily fabricated as by sewing or the like as will be readily understood.

With the above description of the invention in mind, reference is made to the claims appended hereto for a definition of the scope of the invention.

Claims (English)

1. An **oxygen tank (^)** holder for use with a wheelchair (30) of the type having a pair of handle supports (32, 34) extending longitudinally along the back of the wheelchair (30) in transversely spaced relation and a pair of bottom frame members (38, 40) extending rearwardly of the wheelchair (30) in transversely spaced relation, characterised in that said holder comprises:
    - a pouch (2) having an open top (4) and a closed bottom (6) for holding an **oxygen tank (^)** (8);
    - first strap means (10) secured to the pouch (2) near the open top (4) thereof and extending away therefrom in one direction;
    - second strap means (12) secured to the pouch (2) near the open top (4) thereof and extending away therefrom in a direction opposite the one direction;
    - first loop means (26) secured to the pouch (2) near the closed bottom (6) thereof and extending away therefrom generally in the direction of the first strap means (10);
    - second loop means (28) secured to the pouch (2) near the closed bottom (6) thereof and extending away therefrom generally in the direction of the second strap means (12); whereby in use
    - the first strap means (10) is disposed around one of the pair of wheelchair handle supports (32, 34) near the top thereof;
    - the second strap means (12) is disposed around the other of the pair of wheelchair handle supports (32, 34) near the top thereof;
    - the first loop means (26) is looped around one of the pair of bottom wheelchair frame members (38, 40);
    - the second loop means (28) is looped around the other of the pair of bottom wheelchair frame members (38, 40); and
    - said first and second strap means (10, 12) and said first and second loop means (26, 28) are cooperatively arranged on the respective first and second wheelchair handle support members (32, 34) and the respective first and second bottom wheelchair frame members (38, 40) for supporting the pouch (2) on the back of the wheelchair (30) so that the open top (4) of the pouch is in alignment with the closed bottom (6) thereof.
2. An **oxygen tank (^)** holder as claimed in claim 1 wherein:
    - the lengths of the first and second strap means (10, 12) are adjustable and the length of one of the first and second loop means (26, 28) is longer than the length of the other said first and second loop means (26, 28), whereby said first and second strap means (10, 12) and said first and second loop means (26, 28) in use are cooperatively arranged on the respective wheelchair handle support members (32, 34) and the respective bottom wheelchair frame members (38, 40) to accommodate different transverse spacing between the handle support members (32, 34) and the bottom frame members (38, 40), and so that in use the pouch (2) can be displaced away from the centre of the wheelchair back with the alignment of the open pouch top (4) and the closed pouch bottom (6) being maintained.

3. An oxygen tank (^) holder as claimed in claim 1 or claim 2 wherein each of the first and second strap means (10, 12) includes:
    - a first strap member (10) and a first buckle member (14) associated therewith, said first strap member (10) being adjustable in length on said first buckle member (14);
    - a tail (18) having a second buckle (22) member attached thereto; and

    said first and second buckle members (14, 22) being in engaged relation when the strap means (10, 12) is disposed around a respective handle support.
4. An oxygen tank (^) holder as claimed in claims 1 to 3 wherein:
    - the pouch (2), the first and second strap means (10, 12) and the first and second loop means (26, 28) are of a flexible fabric material to facilitate folding the pouch for storage and packing when not in use.

Claims (French)

1. Un dispositif de maintien de réservoir d'oxygène destiné à être utilisé, avec un fauteuil roulant (30) du type ayant une paire de supports de poignée (32, 34) s'étendant longitudinalement le long du dossier du fauteuil roulant (30) selon une relation espacée transversalement et une paire d'éléments inférieurs de châssis (38, 40) s'étendant vers l'arrière du fauteuil roulant (30) selon une relation espacée transversalement, caractérisé en ce que ledit dispositif de maintien comprend :
    - une poche (2) ayant une partie supérieure ouverte (4) et un fond fermé (6) destiné à maintenir la bouteille d'oxygène (8) ;
    - des premiers moyens de sangle (10) fixés à la poche (2) près de la partie supérieure ouverte (4) de celle-ci et s'éloignant de celle-ci dans une direction ;
    - des seconds moyens de sangle (12) fixés à la poche (2) près de la partie supérieure ouverte (4) de celle-ci et s'éloignant de celle-ci dans une direction opposée à la première direction ;
    - des premiers moyens de boucle (26) fixés à la poche (2) près du fond fermé (6) de celle-ci et s'éloignant de celle- ci globalement dans la direction des premiers moyens de sangle (10) ;
    - des seconds moyens de boucle (28) fixés à la poche (2) près du fond fermé (6) de celle-ci et s'éloignant de celle-ci globalement dans la direction des seconds moyens de sangle (12) ; de telle sorte que, en utilisation
    - les premiers moyens de sangle (10) soient disposés autour d'un support de la paire de supports de poignée (32, 34) du fauteuil roulant près de la partie supérieure de celui-ci ;
    - les seconds moyens de sangle (12) soient disposés autour de l'autre support de la paire de supports de poignée (32, 34) près de la partie supérieure de celui-ci ;
    - les premiers moyens de boucle (26) soient enroulés autour d'un élément parmi les élément s de châssis de fond (38, 40) du fauteuil roulant ;
    - les seconds moyens de boucle (28) soient enroulés autour de l'autre élément de la paire d'éléments de châssis de fond (38, 40) du fauteuil roulant ; et
    - lesdits premiers et seconds moyens de sangle (10, 12) et lesdits premiers et seconds moyens de boucle (26, 28) soient agencés de manière à coopérer sur les premier et second éléments de support de poignée (32, 34) respectifs du fauteuil roulant et les premier et second éléments de châssis de fond (38, 40) respectifs du fauteuil roulant pour supporter la poche (2) au dossier du fauteuil roulant (30) de sorte que la partie supérieure ouverte (4) de la poche est alignée avec le fond fermé (6) de celle-ci.
2. Un dispositif de maintien de réservoir d'oxygène selon la revendication 1, dans lequel :
    - les longueurs des premiers et seconds moyens de sangle (10, 12) sont réglables et la longueur de l'un des premiers et seconds moyens de boucle (26, 28) est supérieure à la longueur de l'autre desdits premiers et seconds moyens de boucle (26, 28) ; de telle sorte que lesdits premiers et seconds moyens de sangle (10, 12) et lesdits premiers et seconds moyens de

boucle (26, 28) en utilisation soient agencés en coopération sur les éléments de support de poignée (32, 34) respectifs du fauteuil roulant et les éléments de châssis de fond (38, 40) respectifs du fauteuil roulant pour s'adapter à un espace transversal différent entre les éléments de support de poignée (32, 34) et les élément de châssis de fond (38, 40) et de sorte qu'en utilisation, la poche (2) peut être éloignée du centre du dossier du fauteuil roulant de nouveau avec l'alignement de la partie supérieure ouverte (4) de la poche et du fond fermé (6) de la poche étant maintenu.

3. Un dispositif de maintien de réservoir d'oxygène selon la revendication 1 ou la revendication 2, dans lequel chacun des premier et second moyens de sangle (10, 12) comprend :
   - un premier élément de sangle (10) et un premier élément de bride (14) associé à celui-ci, ledit premier élément de sangle (10) étant réglable en longueur sur ledit premier élément de bride (14) ;
   - une partie arrière (18) ayant un second élément de bride (22) fixé à celle-ci ; et
   - lesdits premier et second éléments de bride (14, 22) étant en relation de prise lorsque les moyens de sangle (10, 12) sont disposés autour d'un support de poignée respectif.
4. Un dispositif de maintien de réservoir d'oxygène selon les revendications 1 à 3, dans lequel :
   - la poche (2), les premiers et seconds moyens de sangle (10, 12) et les premiers et seconds moyens de bouche (26, 28) sont en tissu souple pour faciliter le pliage de la poche pour le rangement et l'emballage lorsqu'elle n'est pas utilisée.

Claims (German)

1. Halter für Sauerstoffbehälter zur Verwendung an einem Rollstuhl (30), welcher zwei Griffstützen (32, 34), die sich longitudinal entlang der Rückseite des Rollstuhls (30) erstrecken und transversal beabstandet sind, und zwei Elemente (38, 40) eines unteren Rahmens aufweist, die sich an der Rückseite des Rollstuhls (30) erstrecken und transversal beabstandet sind, **gekennzeichnet durch**
   - eine Tasche (2) mit einem offenen oberen Ende (4) und einem geschlossenen Boden (6) zum Halten eines Sauerstoffbehälters (8);
   - eine erste Bandeinrichtung (10), die in der Nähe des offenen oberen Endes (4) an der Tasche (2) befestigt ist und sich in einer ersten Richtung von ihr weg erstreckt; eine zweite Bandeinrichtung (12), die in der Nähe des offenen oberen Endes (4) an der Tasche (2) befestigt ist und sich in einer zur ersten Richtung entgegengesetzten Richtung von ihr weg erstreckt;
   - eine erste Schlaufeneinrichtung (26), die in der Nähe des geschlossenen Bodens (6) an der Tasche (2) befestigt ist und sich im wesentlichen in Richtung der ersten Bandeinrichtung (10) von ihr weg erstreckt;
   - eine zweite Schlaufeneinrichtung (28), die in der Nähe des geschlossenen Bodens (6) an der Tasche (2) befestigt ist und sich im wesentlichen in Richtung der zweiten Bandeinrichtung (12) von ihr weg erstreckt; wobei bei Gebrauch
   - die erste Bandeinrichtung (10) um eine der zwei Rollstuhl-Griffstützen (32, 34) in der Nähe ihres oberen Endes angeordnet ist;
   - die zweite Bandeinrichtung (12) um die andere der zwei Rollstuhl-Griffstützen (32, 34) in der Nähe ihres oberen Endes angeordnet ist;
   - die erste Schlaufeneinrichtung (26) an einem der zwei unteren Rollstuhl-Rahmenelemente (38, 40) eingehängt ist;
   - die zweite Schlaufeneinrichtung (28) am anderen der zwei unteren Rollstuhl-Rahmenelemente (38, 40) eingehängt ist, und
   - die erste und zweite Bandeinrichtung (10, 12) und die erste und zweite Schlaufeneinrichtung (26, 28) gemeinsam am entsprechenden ersten und zweiten Rollstuhl-Griffstützenelement

(32, 34) und am entsprechenden ersten und zweiten unteren Rollstuhl-Rahmenelement (38, 40) zum Halten der Tasche (2) an der Rückseite des Rollstuhls (30) angeordnet sind, so daß das offene obere Ende (4) der Tasche mit ihrem geschlossenen Boden (6) in einer Linie ausgerichtet ist.

2. Halter für Sauerstoffbehälter nach Anspruch 1, bei dem die Länge der ersten und zweiten Bandeinrichtung (10, 12) einstellbar ist und die Länge der ersten oder zweiten Schlaufeneinrichtung (26, 28) größer ist als die Länge der anderen Schlaufeneinrichtung (26, 28), wobei die erste und zweite Bandeinrichtung (10,. 12) und die erste und zweite Schlaufeneinrichtung (26, 28) bei Gebrauch gemeinsam an den betreffenden Rollstuhl- Griffstützenelementen (32, 34) und den betreffenden unteren Rollstuhl- Rahmenelementen (38, 40) angeordnet sind, um eine unterschiedliche transversale Beabstandung der Tasche zwischen den Rollstuhl-Griffstützenelementen (32, 34) und den unteren Rahmenelementen (38, 40) einzustellen, damit die Tasche (2) bei Gebrauch aus der Mitte der Rückseite des Rollstuhls verschoben werden kann, wobei die Ausrichtung des offenen oberen Endes (4) der Tasche und des geschlossenen Taschenbodens (6) beibehalten wird.
3. Halter für Sauerstoffbehälter nach Anspruch 1 oder 2, bei dem die erste und zweite Bandeinrichtung (10, 12)
   - ein erstes Bandelement (10) und ein erstes damit verbundenes Schnallenelement (14), wobei am ersten Schnallenelement (14) die Länge des ersten Bandelements (10) einstellbar ist; und
   - ein Bandenede (18) mit einem daran befestigten zweiten Schnallenelement (22) umfassen; und wobei
   - das erste und zweite Schnallenelement (14, 22) ineinander eingreifen, wenn die Bandeinrichtung (10, 12) um eine betreffende Griffstütze herum angeordnet ist.
4. Halter für Sauerstoffbehälter nach einem der Ansprüche 1 bis 3, bei dem die Tasche (2), die erste und zweite Bandeinrichtung (10, 12) und die erste und zweite Schlaufeneinrichtung (26, 28) aus einem flexiblen Gewebematerial bestehen, um das Falten der Tasche zur Lagerung und zum Verpacken zu erleichtern, wenn sie nicht in Gebrauch ist.